

CLIPPEDIMAGE= JP403012960A  
PAT-NO: JP403012960A  
DOCUMENT-IDENTIFIER: JP 03012960 A  
TITLE: SEMICONDUCTOR DEVICE AND MANUFACTURE THEREOF

PUBN-DATE: January 21, 1991

INVENTOR-INFORMATION:

NAME  
IIDA, MAKIO

ASSIGNEE-INFORMATION:

|                    |         |
|--------------------|---------|
| NAME               | COUNTRY |
| NIPPONDENSO CO LTD | N/A     |

APPL-NO: JP01147538  
APPL-DATE: June 10, 1989

INT-CL\_(IPC): H01L027/04; H01L027/06  
US-CL-CURRENT: 257/537, 257/539, 438/128

ABSTRACT:

PURPOSE: To prevent insufficient capacity of a capacitor and bad insulation voltage resistance from being produced by disposing a thin film resistor in a thin film resistor formation region on an insulating film on a semiconductor substrate on which an active element is formed, and laminating successively a thin film resistor and a wiring metal on an oxide film, a dielectric, of a capacitor formation region on the semiconductor substrate.

CONSTITUTION: A CrSi thin film resistor 24 is disposed in a thin film resistance formation region on a silicon oxide film 10 on a deep N<SP>+</SP> region 9 of a silicon substrate 5 on which a bipolar transistor 1 is formed. Further, there are successively laminated a CrSi thin film resistor 24, a TiW film 25, and an aluminum wiring layer 27 on a silicon oxide film 23, as a dielectric, of a capacitor 2 formation region on the silicon substrate 5. Accordingly, the capacitor 2 silicon oxide film 23 is covered with the CrSi

thin film resistor 24 and the TiW film 25, and the silicon oxide film 23 formed by thermal oxidation is not exposed to etching atmosphere, so that there are eliminated reduction of the film thickness and occurrence of any pin hole. Hereby, insufficient capacity and bad insulation voltage resistance of a capacitor can be prevented from being produced.

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CLIPPEDIMAGE= JP363062746A  
PAT-NO: JP363062746A  
DOCUMENT-IDENTIFIER: JP 63062746 A  
TITLE: PREPARATION OF THERMAL HEAD

PUBN-DATE: March 19, 1988

INVENTOR-INFORMATION:  
NAME  
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ASSIGNEE-INFORMATION:  
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|  |         |
|--|---------|
|  | COUNTRY |
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APPL-NO: JP61208930  
APPL-DATE: September 4, 1986

INT-CL (IPC): B41J003/20  
US-CL-CURRENT: 347/200

ABSTRACT:

PURPOSE: To reduce the number of processes to facilitate manufacturing and to achieve the enhancement of quality and cost reduction, by using the same metal material in the first lead conductor layer and the second lead conductor layer, and forming an oxide film layer between both of the first and second lead conductor layers.

CONSTITUTION: A glaze layer 2 is formed by printing to the entire surface of an insulating substrate 1 composed of alumina as a heat accumulation layer, by and a resistor layer 3, the first lead conductor layer 5, an oxide film layer 7 and the second lead conductor layer 6 are further formed on said glaze layer from below in succession in a laminated state. At the point of time when the formation of the first lead conductor layer 5 is finished, the entire surface of said layer 5 is forcibly oxidized to form the oxide film layer 7. The first lead conductor layer 5 and the second lead conductor layer 6 are constituted of

the same metal, for example, aluminum. A photoresist method is adapted to the second lead conductor layer 6 to form the second lead conductors 6a, 6b in an etching tank. By using a different photopattern mask, the second etching processing is taken. By this method, the part 5c corresponding to a heat generating part is removed to form the first lead conductors 5a, 5b.

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